

# AWESOME SCIENCE

## Living Walls

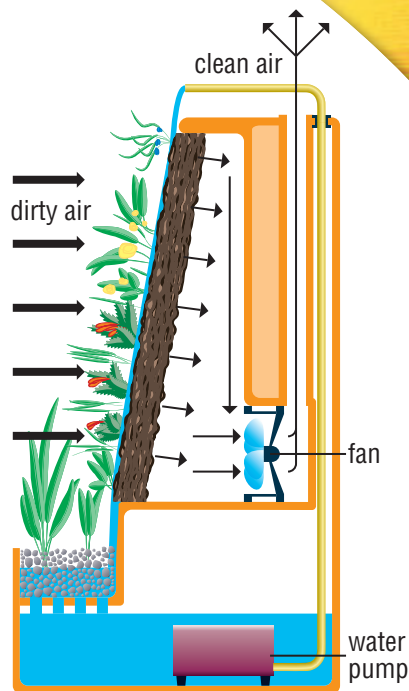
You walk into one of the many tall buildings in the “concrete jungle” of a typical urban centre. As you enter, you hear cascading water, feel and smell the cool, fresh air, and then you see a green wall. Are those plants growing up the wall? Welcome to the world of living walls (Figure 1)!



**Figure 1** The living wall at the University of Guelph contains over 1000 plant species.

When we think of air pollution, we usually think of the air outdoors. Indoor air can also be polluted. Sources of indoor air pollution include moulds, pet dander, plant pollen, and chemicals from paints and furniture. Living walls are an environmentally friendly way to improve the air quality inside office buildings. A living wall can remove up to 90 % of over 300 different pollutants from indoor air.

A typical living wall (Figure 2) is made of a material that allows air and water to flow through it. Two layers of this material are attached to each other and mounted on the wall. Plants are placed into holes in the material, where their roots grow and hold them in place. The bottom edge of the living wall sits in a pool of water. The water is pumped to the top of the wall where it trickles down. Fans placed behind the living wall pull air through the wall and send it to different parts of the building.



**Figure 2** Cross-section of a living wall

How does a living wall clean the air? Most of the work is done by micro-organisms, which live on the plants' roots. As air passes through the wall, the micro-organisms consume the pollutants in the air and break them down into harmless substances. This process is known as biofiltration. For this reason, living walls are sometimes called “biowalls.” In addition to providing a habitat for the micro-organisms, the plants also remove carbon dioxide, another indoor pollutant, from the air.

To learn more about living walls,

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